

## Rosenbauer – Central States Division

One (1)

Y\_\_N\_\_

### **FREIGHTLINER M2 CONVENTIONAL CHASSIS**

A Freightliner M2 two-door chassis per the following specifications shall be furnished:

#### **ENGINE AND ENGINE EQUIPMENT:**

- MBE900-330 7.2L 330HP @2300 RPM; 2500 GOV 1000 lb/ft @ 1200 R/F/E
- Engine mounted oil check & fill
- Side of hood air intake with NFPA Compliant Ember Screen
- Leece Neville 12volt 270 amp 4949PA pad mounted alternator
- Three (3) Alliance 1031 GRP31 12volt MF 2288 CCA threaded stud batteries
- Battery box frame mounted
- Frame ground return for battery cable
- No clutch
- Wabco 15.5 CFM air compressor
- Teflon compressor discharge line
- GVG, Fire and Emergency Service Vehicles Engine Warning
- Mercedes Benz On/Off Compression Brake
- Single horizontal muffler w/horizontal tail pipe exhaust, right hand mount
- Horton HT650 frontal air on/off engine fan clutch
- MBE fuel filter
- Full flow oil filter
- 1000 square inch radiator - Aluminum
- Antifreeze to -34F, ethylene glycol pre-charged SCA heavy duty coolant
- Rubber coolant hoses
- Constant tension hose clamps for coolant hoses
- Aluminum flywheel housing
- Delco 12volt 28MT starter

#### **TRANSMISSION AND EQUIPMENT:**

- Allison 3000EVS automatic transmission w/PTO Provision
- Transmission programming - 5 speed EVS
- Magnetic plugs, engine drain, transmission drain, axles fill & drain
- Push button, electronic shift control, dash mounted
- Transmission oil check and fill with electronic oil level check
- Water to oil transmission cooler – frame mounted

#### **FRONT AXLE AND SUSPENSION:**

- Meritor MFS-14-143A front axle @ 14,700 lbs
- Meritor 16.5 x 5 "Q+" cast spider cam front brake, double anchor, fab shoes
- Fire & emergency severe service, non-asbestos front lining
- Conment cast iron front brake drums
- Chicago rawhide Scotseal front oil seals
- Meritor automatic front slack adjusters
- TRW TAS-85 power steering
- Power steering pump
- Two (2) quart see through power steering reservoir
- 14,600# taperleaf front suspension
- Graphite Bronze Bushings W/Seals – Front Suspension
- Front shock absorbers

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### REAR AXLE AND EQUIPMENT:

- Meritor RS-23-160 R-SRS single rear axle @23,000#
- 5.63 Axle ratio
- Iron rear axle carrier housing
- 17T Meritor main driveline with half round yokes
- Meritor 16.5 x 7 "Q+" cast spider cam rear brakes, double anchor, fab shoes
- Fire & emergency severe service, non-asbestos rear lining
- Conmet cast iron rear brake drums
- Chicago Rawhide Scotseal rear oil seals
- Haldex longstroke drive axle spring parking chambers
- Meritor automatic rear slack adjusters
- 31,000# flat leaf spring rear suspension w/radius rod
- Spring suspension - no axle spacers
- Standard U-bolt pad
- Fore/Aft Control Rods

### BRAKE SYSTEM EQUIPMENT:

- Air brake package
- Wabco 4S/4M ABS w/o traction control enhancement
- Reinforced nylon, fabric braid & wirebraid chassis air lines
- BW AD-9 brake line air dryer w/heater
- Steel air brake reservoirs
- BW DV-2 auto drain valve w/o heater - all tanks

### TRAILER CONNECTION:

- No trailer air hose
- Upgraded Cab multiplexing unit

### FRAME:

- 11/32" x 3-1/2" x 10-15/16" Steel frame (8.73MM x 277.8/.344" x 10.94) 120 KSI
- 1/4" (6MM) C-Channel Inner Frame Reinforcement
- Square end of frame
- Standard rear most cross member
- Standard suspension cross member

### CHASSIS EQUIPMENT:

- Three-piece 14" chrome plated bumper with collapsible ends
- Front tow hooks - frame mounted
- Bumper mounting for single license plate
- Clear frame rails - no protrusions outboard both rails BOC to rear suspension
- Grade 8 threaded hex-head frame fasteners

### FUEL TANKS AND EQUIPMENT:

- 50 Gallon/189 liter rectangular aluminum fuel tank - right hand side
- Plain aluminum/painted steel fuel/hydraulic tanks with painted bands
- Fuel tank forward
- Fuel tank cap
- Equiflo inboard fuel system
- Reinforced Nylon Fuel Hose

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### FRONT TIRES, HUBS, WHEELS:

- Goodyear G159, 12R 22.5 16 PLY
- Conmet Iron Front Hubs
- Accuride 28408 22.5 x 8.25 10-hub pilot 2-hand steel disc front wheels

### REAR DRIVE TIRES, HUBS, WHEELS

- Goodyear G164 RTD, 11R 22.5 14 PLY
- Conmet iron rear hubs
- Accuride 28408 22.5 x 8.25 10-hub pilot 2-hand steel disc rear wheels

### CAB EXTERIOR:

- A 106" BBC flat roof conventional cab
- Air cab mounts
- Exterior Grab Handles With Single Rubber Insert, LH/RH
- Painted plastic grille
- Fiberglass hood
- Single electric horn
- All locks keyed the same
- Rear license plate mount at end of frame
- Integral headlight/marker assembly
- Five (5) amber marker lights
- Integral stop/tail/backup lights
- Standard front turn signal lamps
- Dual Bright Heated West Coast Mirrors
- Door Mounted Mirrors
- 102" equipment width
- LH/RH 8" Convex Mirrors, Bright Finish, Mounted Under Primary Mirrors
- Right hand down view mirror
- Standard side/rear reflectors
- 63" X 14" tinted rear window
- Tinted door glass, left and right side with tinted nonoperating wing windows
- Manual door window regulators
- Tinted windshield
- 8 Liter windshield washer reservoir w/o fluid level indicator

### CAB INTERIOR:

- Opal gray vinyl interior
- Molded plastic door panels
- Gray vinyl mats with insulation
- Forward roof mounted console with upper storage compartments
- Between Seat Console W/Coin Tray, CB Bin Storage, & Cup & Thermos Holder
- Two (2) cup holders, left and right side of dash
- Heater, defroster and air conditioner
- Main HVAC controls with recirculation switch
- Standard heater plumbing
- Silencer package for cab
- Solid state circuit protection and fuses
- Dome Lite W/3-Way Switch Activated By LH And RH Doors

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- Cab door latches with manual door locks
- Full Width Bench Seat
- LH/RH integral door panel arm rests
- Vinyl w/Vinyl insert, driver's seat
- 3-point fixed high visibility orange driver & passenger and 2-point
- Adjustable tilt and telescoping steering column
- 450MM (18") Four-Spoke steering wheel
- Driver and passenger interior sun visors

### INSTRUMENT PANEL AND CONTROLS

- Black gauge bezels
- Gray Instrument panel - Driver side
- Low air pressure light and buzzer
- Primary & secondary air pressure gauges
- Engine compartment mounted air restriction indicator w/warning light in dash
- Cruise control - electronic engine, with switches in left hand switch panel
- Key operated ignition switch & integral start position; 4-position off/run/start/acc
- Odo/trip/hour/diagnostic/voltage display 1x7 char, 26 warning lamps, data linked ICU3
- Diagnostic interface connector, 9-pin, SAE J1587/1708/1939 located below dash
- Electric fuel gauge
- Engine ECM Customer Access Connector Mtd Fwd, Park Brake, & Neutral Interlock
- Electrical engine coolant temperature gauge
- Transmission oil temperature gauge
- Engine and trip hour meters integral within driver display
- Electric engine oil pressure gauge
- Electronic MPH speedometer w/secondary KPH scale w/o odometer
- Electronic tachometer 3000 RPM
- Digital voltage display integral with drier display ICU3
- Single electric windshield wiper motor w/delay
- Marker light switch panel integral w/headlight switch
- Self cancel turn signal switch w/dimmer, washer/wiper & hazard in handle
- Integral electronic turn signal flasher

### PAINT DESIGNS

- Chassis cab shall be painted one solid color - cab color Imron (number to be determined) red
- Chassis - black high solids polyurethane

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One (1)	<b>CHASSIS ADDITIONS AND MODIFICATIONS</b>	Y__N__
	<b>STEP SURFACE</b>	
	The commercial chassis step area on the driver's side shall have slip resistant overlay material installed on each step surface.	
One (1)	<b>STEP SURFACE</b>	Y__N__
	The commercial chassis step area on the passenger side shall have slip resistant overlay material installed on each step surface.	
One (1)	<b>STEP TYPE FUEL TANK</b>	Y__N__
	There shall be a step type fuel tank furnished with the chassis.	
One (1)	<b>FRONT MUD FLAPS</b>	Y__N__
	Heavy-duty, white colored, rubber mud flaps shall be furnished and installed behind the front wheels of the vehicle. Mud flaps shall extend the full width of the front tires and are to be attached with stainless steel fasteners.	
One (1)	<b>REAR MUD FLAPS</b>	Y__N__
	Heavy-duty, white colored, rubber mud flaps shall be furnished and installed behind the rear wheels of the vehicle. Mud flaps shall extend the full width of the rear duals and are to be attached with stainless steel fasteners.	
One (1)	<b>HORIZONTAL CHASSIS EXHAUST</b>	Y__N__
	The chassis exhaust system shall be extended to the front of the right rear wheel.	
One (1)	<b>ALTERNATOR</b>	Y__N__
	The alternator shall be of adequate size to meet the NFPA requirements and to accommodate the specific apparatus electrical load.	

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### PUMP AND PLUMBING

One (1)

#### **WATEROUS CX-1250 GPM SINGLE STAGE FIRE PUMP**

Y\_\_N\_\_

The centrifugal type fire pump shall be a Waterous model CX midship mounted with a rated capacity of 1250 GPM. The pump shall meet NFPA 1901 requirements.

One (1)

#### **SINGLE STAGE MIDSHIP MOUNTED FIRE PUMP**

Y\_\_N\_\_

A Waterous Model CXY fire pump shall be midship mounted, single stage centrifugal type. In addition to meeting NFPA 1901 requirements, it shall be constructed and mounted in accordance with the following specifications.

Fire pump shall incorporate high strength involute toothform Morse HV chain drive transmission. Benefits of the chain drive include quiet, noiseless operation at high shaft speeds, and improved power-transmitting capabilities due to the fact that the chain wraps itself halfway around the gear distributing a very uniform pattern of tooth engagement. Pump transmissions utilizing spur or helical drive gears that create high noise levels at elevated speeds and only permit minimal tooth to tooth engagement are not acceptable.

The shift engagement shall be accomplished by a free sliding collar and shall incorporate an internal locking mechanism to insure that collar will be maintained in ROAD or PUMP operation.

At time of delivery the pump shall be tested and rated as follows:

- 100% of rated capacity at 150 pounds net pressure
- 70% of rated capacity at 200 pounds net pressure
- 50% of rated capacity at 250 pounds net pressure
- 100% of rated capacity at 165 pounds net pressure

The pump casing shall be a three-piece, vertically split design, high strength gray iron.

The impeller shaft shall be stainless steel, heat treated, and precisely machined and ground to size. All bearings are to be oil or grease lubricated, ball-type, located outside the pump casing in the pump transmission, to accurately align and support the impeller shaft assembly and input shaft. Ball bearings are to be deep groove type, designed to carry both radial and axial loads. A face-type, self-adjusting, corrosion and wear resistant mechanical seal is to be provided.

The pump must be tested by the pump manufacturer for 10 minutes hydrostatically at a pressure of 500 psig. Certification by the pump manufacturer must be provided.

The pump shall be provided with a plate giving the rated flow at "capacity" and "pressure" test pressures, together with the R.P.M. of the engine at those pressures and deliveries and mounted in clear view of the pump operator's panel. Data plate shall include model and serial numbers of the pump body and chain transmission, hydro and discharge test pressures, and the date of pump and transmission manufacture.

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All pump components including relief valve, pump shift and priming system shall be manufactured by the Waterous Company to insure sole source responsibility and engineered compatibility.

### **PRIMING SYSTEM**

The pump shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry, through 20 feet of suction hose of appropriate size. It shall be capable of developing a vacuum of 22" at an altitude of up to 1000 feet.

A vacuum test with a capped suction of at least 20' long shall develop 22" of vacuum and hold a vacuum with a drop not in excess of 10" in 5 minutes.

One (1)

Y\_\_N\_\_

### **VPO/VPOS OILLESS PRIMING SYSTEM**

A Waterous VPO/VPOS oil less priming system shall be supplied with the pump.

One (1)

Y\_\_N\_\_

### **MANUAL CONTROL PRIMING PUMP**

Priming pump shall be activated by a mechanical/electric valve with a single pull control located at the pump operator's panel area. Valve actuation may be accomplished while the main pump is operational, if necessary to assure a complete prime.

One (1)

Y\_\_N\_\_

### **PNEUMATIC PUMP SHIFT**

The pump shift shall be air operated and shall incorporate an air cylinder with an electric actuating switch to shift from road to pump and back.

The pump shift switch shall be mounted in the cab and identified as "Pump Shift" and include instructions permanently inscribed on the pump shift switch plate. The In-Cab operating switch uses a spring loaded lock to prevent it from accidentally being moved.

\*A "Pump Engaged" indicator shall be provided in the driving compartment to indicate that the pump shift has been successfully completed.

\*An "Ok to Pump" indicator shall be provided in the driving compartment to indicate that the pump is engaged, the chassis transmission is in pump gear, and the parking brake is engaged.

\*A "Throttle Ready" indicator shall be provided at the pump operator's panel that indicates that the apparatus is in "OK to Pump" mode or that the chassis transmission is in neutral and the parking brake is engaged.

\*An interlock system shall be provided to prevent advancement of the engine speed at the pump operators panel unless the chassis transmission is in neutral and the parking brake is engaged, or the apparatus is in "OK to Pump" mode.

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One (1) \*Controls for the pump shift are to be in the cab, and easily accessible. Y\_\_N\_\_

### **IMPELLER HUBS**

Impellers and impeller seal rings are to be of high grade bronze replaceable type and mounted on a stainless steel shaft supported by heavy duty, oil lubricated "ball" bearings. Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. Pumps using "sleeve" type bearings are not acceptable.

The impellers shall be accurately balanced and of the mixed flow design with reverse-flow, labyrinth-type wear rings that resist water bypass and loss of efficiency due to wear. The bronze wear rings shall be easily replaceable so as to eliminate need for the replacing of the entire pump casing due to wear. Impeller hubs must be "Flame Plated", impregnated with tungsten carbide to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.

One (1) Y\_\_N\_\_

### **MECHANICAL SHAFT SEAL**

The pump shall be equipped with self-adjusting, maintenance free, "Mechanical Shaft Seal" which is designed to be functional in the unlikely event of a seal failure. Pumps with packing which requires periodic adjustment and/or replacement will not be acceptable.

One (1) Y\_\_N\_\_

### **CLASS ONE GOVERNOR**

Class 1, pressure governor for electronic engines shall be furnished and installed on the apparatus. The system shall include an alpha/numeric display to show pump pressure and engine RPM. The control panel shall include a RPM/PSI mode switch, an on/off power switch, increase and decrease switches for throttle control, a preset switch to select preset pressure or RPM, and an idle switch to return to idle. The pressure governor shall be connected to the electronic engine and maintain the specified preset discharge pump pressure or a preset engine speed.

One (1) The device will be furnished, installed and tested by the apparatus body builder. Y\_\_N\_\_

### **MANIFOLD DRAIN**

A manifold drain valve shall be furnished with all pump drains connected to it so that the entire pump system may be drained by one control.

Drain valve assembly shall consist of a stainless steel plunger and a bronze body rigidly attached to the fire pump transmission.

A push-pull control with chrome plated "T" handle is to be provided and located at the driver's side of the pump house, properly identified as MASTER DRAIN.

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- One (1) **FIRE PUMP WARRANTY** Y\_\_N\_\_
- The Waterous fire pump shall carry the pump manufacturer's five (5) year warranty covering defective parts and workmanship. A copy of the pump manufacturer's warranty policy shall be provided with the completed apparatus.
- One (1) **UL TEST** Y\_\_N\_\_
- The pump shall undergo an Underwriters Laboratories Incorporated test per Class A requirements of NFPA #1901 prior to delivery of the completed apparatus. The UL acceptance certificate shall be furnished with the apparatus on delivery.
- One (1) **PUMP COOLING LINE** Y\_\_N\_\_
- A 3/8" cooling line shall be installed to recirculate water from the pump back to the water tank, to cool the pump during pro-longed pumping operations. The cooling line shall be controlled at the operator's position with a quarter turn valve.
- One (1) **HEAT EXCHANGER** Y\_\_N\_\_
- A heat exchanger shall be provided on the pump driving engine cooling system. The heat exchanger shall not allow mixing of the pump driving engine coolant and water from the fire pump.
- A gated line shall be installed to provide water from the fire pump to the pump driving engine heat exchanger to assist in engine cooling during pumping operations. The heat exchanger line shall be controlled at the pump operator's panel.
- One (1) **WATEROUS PUMP INSTALLATION** Y\_\_N\_\_
- The Waterous fire pump shall be installed in conjunction with the body manufacturing process. Fire pump installation shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. All drivelines shall be spin balanced prior to final installation.
- One (1) **INTAKE RELIEF VALVE** Y\_\_N\_\_
- A 2-1/2" intake relief valve preset at 125 psi shall be permanently installed on the suction side of the fire pump. The valve shall have an adjustment range of 75 psi to 250 psi, and shall be designed to automatically self-restore to a non-relieving position when excessive pressure is no longer present.
- Discharge side of the intake relief valve shall be plumbed to the right side below the running boards, away from the pump operator, and shall terminate with a 2-1/2" NST male chrome threaded adapter, marked with an engraved tag "Intake pressure relief outlet - Do Not Cap".

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One (1)

### **HOT DIP GALVANIZED INTAKE MANIFOLD**

Y\_\_N\_\_

The suction manifold shall be fabricated from heavy-duty tubular steel. The suction manifold shall have radiused sweep elbows to minimize water turbulence into the suction volute. The suction manifold shall be welded and pressure tested prior to the galvanizing process. After testing the entire suction manifold shall be hot dip galvanized to minimize corrosion. The hot dip galvanized suction manifold shall be attached to the pump intake volute with a heavy-duty, flexible victaulic coupling.

The hot dip galvanized manifold assembly shall have a ten (10) year warranty.

One (1)

### **DRIVER SIDE STEAMER INLET**

Y\_\_N\_\_

There shall be one (1) steamer inlet furnished on the driver side of pump panel. The suction inlet shall have 6" NST thread. The suction inlet shall have a removable strainer provided inside the external inlet.

Steamer inlet to be as short as possible to allow suction fittings to be attached without extending past the side running boards.

One (1)

### **PASSENGER SIDE STEAMER INLET**

Y\_\_N\_\_

There shall be one (1) steamer inlet furnished on the passenger side of pump panel. The suction inlet shall have 6" NST thread. The suction inlet shall have a removable strainer provided inside the external inlet.

Steamer inlet to be as short as possible to allow suction fittings to be attached without extending past the side running boards.

One (1)

### **DRIVER SIDE AIR OPERATED VALVE**

Y\_\_N\_\_

There shall be an air-operated butterfly valve furnished on the driver's side pump panel. Gate valve shall be air operated and have control on the pump operator's panel. The power valve operating mechanism shall prevent movement of the valve from the fully closed position to the fully open position or vice versa, in less than three seconds. Valve shall be mounted directly to the pump and be located behind the side pump panel. The valve shall be capable of withstanding the same pressures as the pump. The valve will have a built in adjustable relief valve installed on the supply side of the valve that dumps to atmosphere. The butterfly valve shall have a 3/4" bleeder/drain valve.

One (1)

### **PASSENGER SIDE AIR OPERATED VALVE**

Y\_\_N\_\_

There shall be an air-operated butterfly valve furnished on the passenger's side pump panel. Gate valve shall be air operated and have control on the pump operator's panel. The power valve operating mechanism shall prevent movement of the valve from the fully closed position to the fully open position or vice versa, in less than three seconds. Valve shall be mounted directly to the pump and be located behind the side pump panel. The valve shall be capable of withstanding the same pressures as the pump. The valve will have a built in adjustable relief valve installed

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One (1) on the supply side of the valve that dumps to atmosphere. The butterfly valve shall have a 3/4" bleeder/drain valve. Y\_\_N\_\_

### **SUCTION CAP DRIVER'S SIDE**

One (1) The driver's side suction inlet shall be equipped with a chrome-plated, long handled, cap capable of withstanding 500 PSI. Y\_\_N\_\_

### **SUCTION CAP PASSENGER SIDE**

One (1) The passenger's side suction inlet shall be equipped with a chrome-plated, long handled, cap capable of withstanding 500 PSI. Y\_\_N\_\_

### **2-1/2" GATED SUCTION INTAKE DRIVER SIDE**

One (1) A 2-1/2" independent gated suction intake shall be provided on the driver's side pump panel. Intake shall be provided with a quarter-turn valve and control. The intake shall have a 3/4" drain valve with handle. Each intake shall have chrome-plated female swivel adapter with removable internal screen and a chrome-plated plug type cap with end chain. Y\_\_N\_\_

### **SUCTION VALVE CONTROL**

One (1) Suction valve shall have swing type control handle located adjacent to valve. Y\_\_N\_\_

### **2-1/2" GATED SUCTION INTAKE PASSENGER SIDE**

One (1) A 2-1/2" independent gated suction intake shall be provided on the passenger's side pump panel. Intake shall be provided with a quarter turn-valve and control. The intake shall have a 3/4" drain valve with handle. Each intake shall have chrome-plated female swivel adapter with removable internal screen and a chrome-plated plug type cap with end chain. Y\_\_N\_\_

### **SUCTION VALVE CONTROL**

One (1) Suction valve shall have swing type control handle located adjacent to valve. Y\_\_N\_\_

### **TRIM PANEL**

One (1) A bolt on stainless steel trim panel shall be provided for easy access to the valve for repair or removal without removing the side panel on all intakes and discharges. Y\_\_N\_\_

### **HOT DIP GALVANIZED DISCHARGE MANIFOLD**

The discharge manifold shall be fabricated from heavy-duty tubular steel. The discharge manifold shall be fabricated, welded, all fittings attached and pressure tested prior to the galvanizing process. After testing the entire suction manifold shall be hot dip galvanized to minimize corrosion. The hot dip galvanized discharge manifold assembly shall be bolted to the pump and have stabilizer arms attached to reinforce the discharge manifold.

The hot dip galvanized manifold assembly shall have a ten (10) year warranty.

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One (1)

### **PUMP DISCHARGES**

Y\_\_N\_\_

Each gated discharge outlet shall include an Akron heavy-duty brass, quarter-turn, swing-out ball valve. All lines to have victaulic couplings or hose with stainless steel fittings installed where flex may occur to prevent cracking of the plumbing system. Each discharge shall have 3/4" cast bronze 1/4 turn drain valve complete with reinforced teflon seals, and blowout proof stem rated to 600 psi. A chrome-plated zinc handle shall be provided on each drain valve, complete with a 1" X 1 1/2" recessed identification label. Drains shall be aligned in a straight horizontal row at the lower edge of the corresponding pump panel so as to allow for ease of identification and operation. Each drain shall be labeled and numbered to correspond to the respective discharge outlet and coloring.

Individual discharge controls are to be aligned in a straight horizontal row across the pump operator's control panel, directly in-line with the corresponding discharge outlet line pressure gauges.

One (1)

### **GALVANIZED PLUMBING**

Y\_\_N\_\_

All rigid piping five-inch diameter or less shall be galvanized type with tapered thread or victaulic type couplings.

Two (2)

### **DRIVER SIDE DISCHARGE OUTLET**

Y\_\_N\_\_

Each 2-1/2" discharge outlet on the driver's side pump panel shall have a 2-1/2" quarter turn valve with control on pump operator's panel. There shall be a chrome plated 2-1/2" NST adapter that extends through the pump panel. Each discharge shall be provided with chrome-plated 30-degree discharge elbow.

Two (2) 2-1/2" discharges shall be located on the driver's side pump panel.

Two (2)

### **MANUAL VALVE**

Y\_\_N\_\_

Discharge valve shall be swing-out type with manual control handle located on pump operator's panel.

Two (2)

### **MANUAL DRAIN VALVE**

Y\_\_N\_\_

The driver's side 2-1/2" discharge outlet shall have a 3/4" drain with individual control on side pump panel. There shall be additional automatic drains furnished as required to drain the plumbing system between the pump and the front discharge connection.

Two (2)

### **PASSENGER SIDE DISCHARGE OUTLET**

Y\_\_N\_\_

Each 2-1/2" discharge outlet on the passenger's side pump panel shall have a 2-1/2" quarter turn, swing-out valve with control on pump operator's panel. There shall be a chrome-plated 2-1/2" NST adapter that extends through the pump panel. Each discharge shall be provided with chrome-plated 30-degree discharge elbow.

Two (2) 2-1/2" discharges shall be located on the passenger's side pump panel.

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Two (2)	<b>MANUAL VALVE</b>  Discharge valve shall be swing-out type with manual control handle located on pump operator's panel.	Y__N__
Two (2)	<b>MANUAL DRAIN VALVE</b>  The passenger's side 2-1/2" discharge outlet shall have a 3/4" drain with individual control on side pump panel. There shall be additional automatic drains furnished as required to drain the plumbing system between the pump and the front discharge connection.	Y__N__
One (1)	<b>DRIVER SIDE REAR DISCHARGE OUTLET</b>  There shall be one (1) 2-1/2" discharge outlet located on the driver's side rear of the body below the hose bed. The discharge outlet shall have a 2-1/2" quarter turn, swing-out valve with control on pump operator's panel. There shall be a chrome-plated 2-1/2" NST adapter that extends through the rear of the body. The discharge shall be provided with a chrome-plated 30-degree discharge elbow.	Y__N__
One (1)	<b>MANUAL VALVE</b>  Discharge valve shall be swing-out type with manual control handle located on pump operator's panel.	Y__N__
One (1)	<b>MANUAL DRAIN VALVE</b>  The driver's side rear 2-1/2" discharge outlet shall have a 3/4" drain with individual control on side pump panel. There shall be additional automatic drains furnished as required to drain the plumbing system between the pump and the front discharge connection.	Y__N__
Five (5)	<b>2-1/2" CAPS AND CHAINS</b>  The following discharge outlets shall be equipped with a 2-1/2" chrome-plated cap and chain.  All 2-1/2" discharges shall have chrome plated caps and chains.	Y__N__
One (1)	<b>MONITOR PROVISION</b>  There shall be a three-inch (3") deluge discharge above fire pump. Deluge outlet shall be plumbed with 3" quarter turn, swing out valve and 3" I.D. pipe with 3" NPT male thread. The three-inch valve shall have a slow close device. Deluge outlet shall have control on pump operator's panel.	Y__N__
One (1)	<b>MANUAL VALVE WITH SLOW CLOSE</b>  Discharge valve shall be swing out type, with slow close and manual control handle located on pump operator's panel.	Y__N__

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- One (1) **MANUAL DRAIN VALVE** Y\_\_N\_\_
- Two (2) Monitor shall have a 3/4" drain with individual control on side pump panel. Y\_\_N\_\_
- 1-3/4" CROSSLAY(S) ASSEMBLY ABOVE PUMP**
- Crosslay hose bed(s) shall be designed to carry 200 feet of 1-3/4" double jacket fire hose. Crosslay hose bed(s) shall be located above the fire pump. The floor of the crosslay hose bed(s) shall be perforated to allow for drainage. Polished stainless steel hose roller assemblies shall be provided at the sides and lower edges of the crosslay opening on each side of the apparatus body.
- Crosslay discharge(s) shall be plumbed using rigid pipe or flexible high-pressure hose coupled with stainless steel fittings. The crosslay shall be provided with 2" brass valve, and a 2" 90 degree swivel adapter with 1-1/2" NST male outlet thread.
- Two (2) 1-3/4" crosslays shall be provided. Y\_\_N\_\_
- MANUAL VALVE**
- Each discharge valve shall be swing out type with manual control handle located on pump operator's panel. Y\_\_N\_\_
- Two (2) **MANUAL DRAIN VALVE**
- Each crosslay/speedlay shall have a 3/4" drain with individual control on side pump panel. Y\_\_N\_\_
- One (1) **BOOSTER HOSE REEL**
- There shall be a Hannay booster hose reel with leak proof ball bearing swing joint, adjustable friction brake and electric rewind furnished. The reel shall be plumbed with wire reinforced, high-pressure hose coupled with brass fittings, and have one-inch (1") swing out, ball valve with control on pump operator's panel.
- Booster hose reel is to be mounted at the rear of the apparatus body inside the rear lower compartment. Y\_\_N\_\_
- One (1) **MANUAL VALVE**
- Discharge valve shall have manual control handle located on pump operator's panel. Y\_\_N\_\_
- One (1) **PAINTED BOOSTER REEL**
- Each booster reel shall have a steel frame and drum assembly with side discs. The frame, drum, drive chain, sprocket, hub assembly swivel joint and fasteners shall be painted silver. The booster reel assembly shall be Hannay model F.

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Two (2) Y\_\_N\_\_

### **ROLLER ASSEMBLY FOR BOOSTER REEL**

The booster hose reel shall be equipped with a heavy-duty, stainless steel roller assembly.

Two (2) sets of rollers shall be provided. One (1) set shall be located on the reel, and the other set on the lower portion of the apparatus body.

One (1) Y\_\_N\_\_

### **BOOSTER HOSE**

Fifty (50) foot length of 1-inch rubber covered booster hose, high-pressure type at least 800 lbs test, coupled and installed on the specified booster hose reel.

One (1) Y\_\_N\_\_

### **BOOSTER HOSE**

One hundred (100) foot length of 1-inch rubber covered booster hose, high-pressure type at least 800 lbs test, coupled and installed on the specified booster hose reel.

One (1) Y\_\_N\_\_

A total of 150' ft. of 1" booster hose shall be provided.

### **HOSEREEL REWIND SWITCH**

One (1) Y\_\_N\_\_

A bush button hose reel rewind switch shall be located adjacent to the hose reel.

### **FOAM SYSTEM**

A Foam Pro Model #1600 built in foam injection system shall be provided with the controls at the operator's panel.

The foam system shall be a fully automatic, electronic, direct injection foam proportioning system. The system shall be capable of Class A foam concentrate. The foam proportioning operation shall be based on an accurate direct measurement of water flows with no water flow restriction. The foam system shall be installed in accordance with the manufacturer's recommendations.

The system shall be equipped with a control module. It shall be installed on the pump operator's panel and enable the pump operator to perform the following functions;

1. Activate the foam system
2. Change foam concentrate proportioning rates of .1% to 1%.
3. Flash a "low concentrate" warning light when the foam concentrate tank runs low of concentrate and in two minutes if foam concentrate is not added to tank, shut the foam concentrate pump down.

The foam system shall have a 12-volt, 1/3-hp electric motor driven positive displacement piston type foam concentrate pump with a rated capacity of .01 to 1.6 gpm with operating pressures up to 400 psi.

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The FoamPro system shall be plumbed to the following discharge outlet.

The two (2) 1-3/4" crosslays  
Booster Reel

One (1)

Y\_\_N\_\_

### **SINGLE FOAM TANK PLUMBING SYSTEM**

The foam tank shall be plumbed with three-quarter inch (3/4") valve and corrosion resistant hose from the foam tank to the foam inlet. There shall be a three-quarter inch (3/4") drain line furnished on the foam tank. Drain valve to be located on foam tank with corrosion resistant hose piped to below the frame level of the chassis.

One (1)

Y\_\_N\_\_

### **FOAM TANK**

A 20-gallon foam concentrate tank shall be furnished as an integral component of the booster tank. The foam tank shall have a separate fill tower provided in a location to allow easy access for filling. Fill tower shall be equipped with a pressure/vacuum vent and have a sealed airtight cover. Tank shall be plumbed to the on board "Class A" foam system. A valved drain shall be provided at the lowest point of the foam tank. The drain shall be plumbed to drain directly to the surface below the apparatus without contacting other body or chassis components.

The following labels shall be attached to the foam tank:

"CLASS A FOAM TANK FILL"  
"WARNING: DO NOT MIX BRANDS AND TYPES OF FOAM"

One (1)

Y\_\_N\_\_

### **TANK TO PUMP PLUMBING**

A 3" *Akron* ball type gated suction valve shall be furnished from the tank to the pump, complete with a flexible connection and enclosed in the pump compartment.

A check valve shall be provided and installed in the line between the tank and the pump to prevent the possibility of backfilling the booster tank through the tank to pump suction line.

Tank suction shall be located in a sump assembly located below the bottom of the tank, properly baffled to prevent surging of water. A 3" cleanout plug shall be provided in the bottom of the tank sump.

One (1)

Y\_\_N\_\_

### **TANK FILL/COOLING LINE**

A gated discharge line from the pressure side of the pump to the tank shall be furnished so the tank can be filled from draft or hydrant. Valve shall have control on the operator's panel. The valve is to be two-inch (2"), swing out type ball valve and be plumbed to tank with flexible type hose.

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One (1)

Y\_\_N\_\_

### **POLY BOOSTER TANK**

The booster tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity.

The transverse swash partitions shall be manufactured of polypropylene and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of polypropylene and extend from the floor of the tank through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

A forward mounted sump shall be provided in the tank. The sump shall be constructed of polypropylene and be located in the left front quarter of the tank. A polypropylene pipe shall be installed that will sweep from the front of the tank to the sump location. The sump shall have a 3" N.P.T. threaded coupling on the bottom for a plug. This shall be used as a combination clean out and tank drain. An anti-swirl plate shall be located above the sump.

There shall be two standard tank outlets; one for tank-to-pump suction lines, and one for a tank fill line. All tank couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

One (1)

The tank shall carry a lifetime warranty from its manufacturer.

Y\_\_N\_\_

### **FILL TOWER**

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of polypropylene and with a minimum dimension of 8" x 14" outer perimeter. The fill tower shall be located in the left front corner of the tank. The fill tower shall have a polypropylene screen and a polypropylene hinged cover. Inside the fill tower, shall be fastened a combination vent overflow pipe. The vent overflow shall be polypropylene pipe that is designed to run through the tank and shall be piped behind the rear wheels.

One (1)

Y\_\_N\_\_

### **BOOSTER TANK**

A 1250-gallon capacity polypropylene booster tank shall be provided.

One (1)

Y\_\_N\_\_

### **HOT DIP GALVANIZED BOOSTER TANK SUBFRAME**

The booster tank shall be mounted on a steel sub frame. Steel sub frame shall consist of two (2) longitudinal 3" x 4 pound channels and two (2) 3" x 4 pound channels welded together to form a tank retention cradle. The tank retention cradle shall prevent fore and aft, and side to side movement of the tank. Additional 3" x 4 pound transverse cross member channels shall be installed to support the floor of the booster tank. The cross members shall have a maximum spacing of 20" for the polypropylene tanks. There shall be an additional full-length longitudinal member

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installed in the center of the tank support area. The booster tank shall rest on heavy rubber channels that isolate the polypropylene tank from the sub frame.

One (1) The booster tank sub frame shall be hot dip galvanized after fabrication. Y\_\_N\_\_

### **EXTERNAL TANK FILL**

An external tank fill shall be provided and installed at the rear of the body. The tank fill shall include a quarter turn 2-1/2" Akron ball valve with a chrome-plated female swivel, plug and chain.

One (1) The direct tank fill shall be located on the passenger's side, approximately 24" above the rear step. Y\_\_N\_\_

### **EXTRUDED ALUMINUM PUMP HOUSE STRUCTURE**

The pump house structure shall be fabricated of extruded aluminum. The structure shall be welded together and have gusset plates on each corner. The pump house shall be mounted separate from the body and chassis and be bolted to the chassis frame rails.

One (1) The exposed areas of the pump house structure shall be overlaid with polished aluminum treadplate. Y\_\_N\_\_

### **TOP MOUNTED OPERATOR'S CONTROL PANEL**

All pump discharge controls are to be mounted above the fire pump at a top mounted operator's control panel to provide around-the-truck visibility.

Access to the top mounted control panel shall be provided from both sides of the truck with a large full width walkway ahead of the control panel.

Access handrails shall be 1-1/4" in diameter extruded aluminum with rubber inserts and chrome plated end brackets shall be provided and installed on each side, for easy access to the walkway.

The valve control levers shall be located on the lower portion and directly adjacent to one another and mounted in line so that they are in the same position when closed. Each valve control lever shall be connected directly to its respective valve by a "direct linkage" control system.

All of the controls shall be clearly identified with, color-coded, permanently engraved plate type identification labels.

A full control panel width polished light hood with a minimum of three (3) Weldon model 2025 light assemblies shall be provided to illuminate the entire top mount pump operator's control console.

Additional polished light hoods with a minimum of two (2) Weldon model 2025 light assemblies shall be provided to illuminate the right and left side pump panels. Lights shall be controlled by the operator's panel light switch.

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There shall be four rubber shock mounted lights furnished in the lower forward facing panel to illuminate the walkway.

### **GAUGE AND VALVE CONTROL PANELS**

Engine gauges and master pump gauges shall be mounted on the upper incline plane of the gauge and valve control panel. Both the upper gauge panel and lower valve control panel to be full width and completely removable for access to the pump compartment. The valve controls and individual pressure gauges to be located on the lower flat surface of the valve control panel. All valves and control handles shall have removable escutcheons for easy valve service without removing the entire panel. All manually operated valve handles shall have twist to lock style controls.

One (1)

Y\_\_N\_\_

### **PUMP PANEL PUMP ENGAGEMENT LIGHT**

One (1) light in the control panel light hood shall come on with a successful pump engagement. This shall be in addition to the "OK to Pump" light on the control panel.

One (1)

Y\_\_N\_\_

### **PUMP PANELS**

The top mount pump operator's control console shall be constructed entirely of aluminum, and be coated with black thermo-plastic material.

One (1)

Y\_\_N\_\_

### **RIGHT AND LEFT SIDE PANEL MATERIAL**

The right and left side pump panels shall be constructed entirely of aluminum, and be coated with black thermo-plastic material. The panels are to be completely "bolted" in place for ease of removal.

One (1)

Y\_\_N\_\_

### **PUMP COMPARTMENT SIDE ACCESS DOORS**

The side pump panels shall be provided with a full panel width vertically hinged access doors located in the upper portion of the side panel. The doors shall be approximately 18" high and as wide as possible, and shall be constructed of polished aluminum treadplate. Two (2) flush mounted, push type latches shall be furnished to hold the door closed. The inspection door shall be attached with a stainless steel hinged and have a retainer cable attached to prevent the door from opening too far.

One (1)

Y\_\_N\_\_

### **STORAGE COMPARTMENTS**

Large enclosed storage compartments shall be provided and installed below the top mount walkway on the driver's side of the apparatus. Each compartment is to be constructed of .125 aluminum and shall include an aluminum treadplate hinged vertically hinged door, stainless steel hinge with 3/16" diameter hinge pin, and a "D" type handle/latch. Compartments shall be completely enclosed and weather-stripped.

There shall be one (1) clear compartment light mounted to the top of the walkway compartment ceiling. Compartment light shall switch on automatically when the compartment door is opened and switch off when the door is closed.

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One (1)

### STORAGE COMPARTMENTS

Y\_\_N\_\_

Large enclosed storage compartments shall be provided and installed below the top mount walkway on the passenger's side of the apparatus. Each compartment is to be constructed of .125 aluminum and shall include an aluminum treadplate hinged vertically hinged door, stainless steel hinge with 3/16" diameter hinge pin, and a "D" type handle/latch. Compartments shall be completely enclosed and weather-stripped.

There shall be one (1) clear compartment light mounted to the top of the walkway compartment ceiling. Compartment light shall switch on automatically when the compartment door is opened and switch off when the door is closed.

One (1)

### PUMP COMPARTMENT ACCESS DOOR

Y\_\_N\_\_

A full width removable access panel constructed of .125 aluminum treadplate material is to be provided at the front of the pump compartment. The access panel is to be flush mounted in the forward wall of the pump compartment. The door shall have a bent "D"-ring type handle with dual locking pins on each side.

One (1)

### HEAT PAN ENCLOSURE

Y\_\_N\_\_

A removable casing constructed of galvanized steel, completely enclosing the underside of the pump compartment and heated by the engine exhaust shall be provided. The heat pan assembly shall include two individual panels that can be easily removed from their mounting locations. The two outer slide-out panels shall be bolted in place.

One (1)

### PUMP OPERATORS PANEL

Y\_\_N\_\_

The following equipment shall be installed on the pump operator's panel.

One (1)

### MASTER GAUGES

Y\_\_N\_\_

Class One #LFP410, 4-1/2" diameter liquid filled pressure gauge registering up to 600-lbs per square inch with 1/4" pipe thread connection. The gauge shall be of the type that will not be injured when subjected to a vacuum. The gauge is to have a white face with black lettering. The gauge is to be located at the right of the gauge panel and labeled "DISCHARGE" with an engraved label.

Class One #LFP410, 4-1/2" diameter liquid filled compound gauge shall be provided on the suction side of the pump registering at least 600-lbs pressure and 30-inches of vacuum. The gauge shall have a white face with black lettering. The gauge is to be located to the left of the master discharge gauge and labeled "INTAKE" with an engraved label.

One (1)

### PRESSURE GAUGES

Y\_\_N\_\_

Class One #LFP220, 2-1/2" diameter liquid filled pressure gauges shall be provided. The gauges are to have white faces with black lettering. The gauges shall read -30 to 600 lbs. Line pressure gauges shall be individually identified with engraved labels.

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- Individual line pressure gauges are to be mounted adjacent to the corresponding discharge valve control.
- Two (2) Y\_\_N\_\_
- There shall be one (1) pressure gauge for each 1-1/2" discharge outlet.
- Five (5) Y\_\_N\_\_
- There shall be one (1) pressure gauge for each 2-1/2" discharge outlet.
- One (1) Y\_\_N\_\_
- There shall be one (1) pressure gauge for each deck gun outlet.
- One (1) Y\_\_N\_\_

### CLASS ONE GOVERNOR

Class 1, pressure governor for electronic engines shall be furnished and installed on the apparatus. The system shall include an alpha/numeric display to show pump pressure and engine RPM. The control panel shall include a RPM/PSI mode switch, an on/off power switch, increase and decrease switches for throttle control, a preset switch to select preset pressure or RPM, and an idle switch to return to idle. The pressure governor shall be connected to the electronic engine and maintain the specified preset discharge pump pressure or a preset engine speed.

- The device will be furnished, installed and tested by the apparatus body builder.
- One (1) Y\_\_N\_\_

### INFORMATION CENTER

A Class 1 Enfo III master engine gauge and warning device shall be furnished and installed on the pump operator's panel. The device will monitor the following engine systems;

- Engine RPM display
- System voltage display and alarm
- Engine oil pressure display and alarm
- Engine water temperature display and alarm.

- One (1) Y\_\_N\_\_

### PUMP HOURMETER

A pump hour meter shall be provided on the pump operator's panel.

- One (1) Y\_\_N\_\_

### PUMP PANEL IDENTIFICATION LABELS

All discharges shall be provided with color-coded labels. Identification labels shall be provided at the discharge control, the discharge outlet, and at the discharge drain valve control, color-coded according to NFPA recommended standards.

- One (1) Y\_\_N\_\_

### PUMP PANEL WATER TANK LEVEL GAUGE

A Class One ITF Intelli-tank water tank level gauge shall be provided on the pump operator's panel. The Intelli-tank display features wide angle viewing and four (4) ultra-bright LED's for high visibility, even in direct sunlight. The Intelli-tank utilizes a pressure transducer, ILO of probes, to provide nine (9) accurate levels of indication.

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One (1)

### **PUMP PANEL FOAM TANK LEVEL GAUGE**

Y\_\_N\_\_

A Class One ITF Intelli-tank foam tank level gauge shall be provided on the pump operator's panel. The Intelli-tank display features wide angle viewing and ultra-bright LED's for high visibility, even in direct sunlight. The Intelli-tank utilizes a pressure transducer, ILO of probes, to provide nine (9) accurate levels of indication.

One (1)

### **UL TEST CONNECTIONS**

Y\_\_N\_\_

A pump pressure and vacuum test block assembly shall be provided and mounted at the pump operator's control panel. The test block assembly shall include plug type caps.

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### APPARATUS BODY SPECIFICATIONS

One (1)

#### HOSEBODY

Y\_\_N\_\_

The apparatus hose body is to be properly reinforced without the use of angles or structural shapes, and free from all projections that might injure the fire hose.

The main apparatus hose body shall run the full length of the apparatus body from behind the pump panel area to the rear face of the body.

The upper rear interior of the beavertail extrusions on the right and left side shall be overlaid with brushed stainless steel to protect the painted surface from damage by hose couplings

One (1)

#### HOSEBED CAPACITY

Y\_\_N\_\_

The hose bed will be configured to be 55 cubic feet, unless the desired hose load requires more area.

The hose bed shall hold the following:

One (1)

Hose bed shall have 68 cubic feet.

Y\_\_N\_\_

#### HOSEBED FLOORING

Floors of the hose beds are to be provided with removable slat style extruded aluminum hose bed gratings, spaced 1/2" apart for proper hose ventilation. Hose bed gratings are easily lifted out of the main hose bed for access to the top of the specified booster water tank.

One (1)

Y\_\_N\_\_

#### POLISHED STAINLESS STEEL HOSEBED SCUFF PLATES

The upper, rear, interior of the beavertail extrusions on the right and left side shall be overlaid with polished stainless steel.

One (1)

Y\_\_N\_\_

#### MAIN HOSEBED DIVIDER

Adjustable hose bed dividers shall be provided in the main hose bed.

The hose bed divider(s) shall be fabricated of 1/4" smooth aluminum sheet stock, pressed into a "T" shaped aluminum extrusion for added strength along the bottom edge of the divider.

The divider shall be fully adjustable, mounted using aluminum "C" channel tracks at the front and rear of the divider for full side to side adjustment.

One (1) hose bed divider shall be provided.

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One (1)

Y\_\_N\_\_

### **LADDER RACK, LADDERS AND PIKE POLES**

An electric ladder rack shall be installed on the right side of the apparatus body, to carry the ladders in a horizontal position above the side compartments. Each electric cylinder shall be 12-volt operated and installed in an area that provides proper protection of the electric components.

Ladder rack shall be of the dual pivot arm design with stabilizing arms at the front and rear. Ladder rack assembly shall be located on the right side of the body, above the compartment area. There shall be an air operated safety lock provided with control switch on the right side pump operator's panel. The ladder rack actuator control switch shall be weatherproof type and located on the right side pump panel in full view of the rack. A safety interlock will be supplied to prevent operation of the rack when the upper compartment doors are open.

Flashing lights facing front and rear shall be installed on the rack and shall be illuminated whenever the rack is in the lowered position. The outward side of the equipment rack that protrudes beyond the body of the apparatus shall be striped or painted with reflective material.

Cast aluminum ladder brackets with chrome plated quick release type mounting clamps shall be provided which hold the ladders to the pivot arm assembly.

A red warning light shall be provided and mounted in the cab to warn the driver when ladder rack is not in the stowed position.

One (1)

Y\_\_N\_\_

### **GROUND LADDERS FURNISHED BY BODY BUILDER**

The body builder shall furnish the ground ladders. See equipment section of this document for make and model of ladders.

One (1)

Y\_\_N\_\_

### **HARD SUCTION HOSE STORAGE COMPARTMENTS**

Two (2) large storage compartments shall be provided below the upper "T" of the booster tank, one on each side. The design shall allow the hose to be individually removed from the rear of the apparatus. Each hard suction hose compartment shall have aluminum treadplate door with stainless steel hinge and push to latch door catches.

One (1)

Y\_\_N\_\_

### **PIKE POLE(S) MOUNTED ON LADDER RACK**

There shall be room for the pike pole(s) to be mounted on the ladder rack, along with the specified ladders.

One (1)

Y\_\_N\_\_

### **FOLDING TANK STORAGE COMPARTMENT**

A vertical storage area shall be provided on the passenger side of the booster tank and below the hose bed to carry a portable folding tank. Compartment shall be provided with poly slides on each side, mounted to the floor, to hold the folding tank in position. There shall be a hinged treadplate door with push button latch on rear for ease in loading and removing the folding tank.

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One (1)

### **FOLDING TANK CAPACITY**

Y\_\_N\_\_

The folding tank storage area shall accommodate a 2500-gallon tank.

One (1)

### **ALUMINUM BODY**

Y\_\_N\_\_

The body shall be fabricated of aluminum extrusions, smooth aluminum sheet and aluminum treadplate.

The aluminum extrusion alloy shall be 6061 with a temper rating of T6, and have a tensile strength of 45,000 PSI and yield strength of 40,000 pounds. The aluminum extrusions shall 3" x 3" aluminum tubing and specially designed extrusions where applicable.

The smooth aluminum sheet material alloy shall be 5052 with a temper rating of H32, and have a tensile strength of 33,000 PSI and yield strength of 28,000 pounds.

The aluminum treadplate alloy shall be 3003 with a temper rating of H22, and have a tensile strength of 30,000 PSI and yield strength of 28,000 pounds.

The extrusions shall be designed as structural-framing members with the smooth aluminum and treadplate fabricated to form compartments, hose beds, and floors. All aluminum material shall be welded together using the latest mig spray pulse arc welding system.

Compartments to be sweep out design and to be water and dust proof. All compartments shall be made to the maximum practical dimensions to provide maximum storage capacity.

All exterior compartments shall have polished aluminum drip moldings installed above the doors where necessary to prevent water from entering the compartments.

Wheel well panels shall be double break formed smooth aluminum that is welded in place. There shall be no visible bolt heads, retention nuts or fasteners on the exterior surface of the panel. To fully protect the wheel well area from road debris and to aid in cleaning, a full depth radius wheel well liner shall be provided. The frame side of the wheel well area on each side of the opening shall be attached to the frame side of the front and rear compartments. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartments.

The rear wheel wells shall be radius cut for a streamlined appearance. A polished aluminum fenderette shall be furnished at each rear wheel well opening, held in place with stainless steel fasteners.

### **FASTENERS**

All aluminum and stainless steel components shall be attached using stainless steel fasteners.

Compartment door hinges, handrails and running boards shall be attached using minimum 1/4" diameter machine bolt fasteners.

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One (1) 3/16" diameter fasteners shall only be used in nonstructural areas such as; door handles, trim moldings, gauge mounting, etc. Y\_\_N\_\_

### **CS 1/8" ALUMINUM BODY**

One (1) The aluminum sheet material used in fabricating the body shall be a minimum of .125 (1/8") in thickness. Y\_\_N\_\_

### **BODY DIMENSIONS**

One (1) Apparatus body shall be up to 160" long and 102" wide, reference drawing for actual body length. Body compartments shall be divided into upper and lower areas with the upper area approximately thirteen-inches in depth, and the lower area approximately twenty-six inches in depth. The hose bed shall be 74" wide. Y\_\_N\_\_

### **APPARATUS BODY SUB-FRAME**

The apparatus body sub frame shall be constructed entirely of heavy steel structural channel material.

Two full frame lengths, three-inch (3") 4 pound per foot longitudinal steel channels shall form the sides of the body sub frame and sides of the water tank cradle. Sub frame cross members shall be fabricated with three inch (3") 4 pound per foot heavy steel channel cross members welded to the longitudinal body sub frame sides and the full length frame pads.

Two full frame length 1/2" x 3" flat steel frame pads shall be attached to the body sub frame and rest on top of the chassis frame rails for proper frame weight distribution.

The steel frame pads, longitudinal steel channels and sub frame cross members shall be attached to the chassis frame rails using heavy "U" bolt fasteners to allow removal of the sub frame and body assembly from the chassis. There shall be a barrier provided between the sub frame and body to prevent electrolysis.

The rear sub frame and lower body platform support members shall be of the "two piece" design, fabricated of 4.3 lb. Per foot heavy channel and welded to the full length sub frame channel liners at the rear.

A minimum of two rear platform support channels shall be provided and constructed of 4.3 lb. Per foot heavy steel material. Each support channel shall have welded in gusset where the support meets the rear sub frame rails.

One (1) After fabrication the entire sub frame assembly shall be hot dip galvanized to prevent corrosion. The hot dip galvanized sub frame shall have a lifetime warranty. Y\_\_N\_\_

### **COMPARTMENT VENTS**

All body compartments shall have a minimum of one (1) louvered panel bolted into a wall to provide the proper airflow inside the compartment. There shall be a filter installed behind the louvered panel. The filter shall be accessible for cleaning by removing the louvered panel on the interior of the compartment.

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One (1)

### **BODY AND PUMP HOUSE FLEX JOINT**

Y\_\_N\_\_

When equipped with a fire pump, the body and pump house shall be a separate freestanding component forming a true flex joint between the body and pump house. The intent is to allow either to be easily removed as a single unit without disturbing the other and to provide a flex joint between the two modules. Designs where the pump house and body are interjoined as a common unit do not meet the technical requirement of providing a flex joint or the repairability requirement of these specifications.

One (1)

### **WHEEL WELL LINER AND FENDERETTES**

Y\_\_N\_\_

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth plate that is welded in place.

To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 25") radius wheel well liner shall be provided. Wheel well liner shall be smooth aluminum to prevent corrosion.

The rear wheel wells shall be radius cut for a streamlined appearance. A polished aluminum fenderette shall be furnished at each rear wheel well opening, held in place with concealed stainless steel fasteners.

One (1)

### **REAR TOW EYES**

Y\_\_N\_\_

There shall be two tow eyes furnished under the rear of the body and attached directly to each chassis frame rail. There shall be a reinforcement spreader bar connecting the two tow eyes. Tow eyes are to be constructed of 3/8" plate steel with a 4" I.D. hole, large enough for passing through a tow chain end hook.

One (1)

### **APPARATUS COMPARTMENTATION**

Y\_\_N\_\_

There shall be large enclosed compartments on both sides of the body, starting at the front of the hose body and continuing to the rear of the apparatus. These compartments shall be as large as possible, using all available space.

The aluminum treadplate compartmentation tops on each side of the body shall be extended out and downwards a minimum of .50" over the compartment doors forming a drip rail. Corners shall be TIG welded.

Lower or rear face compartments, if specified shall be provided with polished aluminum drip rails.

One (1)

### **SIDE BODY COMPARTMENT ROLL-UP DOOR CONSTRUCTION**

Y\_\_N\_\_

Exterior side equipment compartments so specified shall be equipped with roll-up shutter doors to be installed as specified herein.

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The drum assembly shall be fully enclosed and protected from the elements. Pendent plates supporting the door roll assembly shall be bolted in place, adjustable and capable of being removed with common hand tools. Pendent plates and supports that are welded in place do not meet the maintenance and service criteria of these specifications.

One (1)

Y\_\_N\_\_

### **NATURAL FINISH ROLL UP DOORS**

The roll-up doors on each side of the apparatus body shall be natural finish aluminum.

One (1)

Y\_\_N\_\_

### **ROLL UP DOORS**

R.O.M. Robinson brand extruded aluminum shutter style doors with lift bar latch mechanisms and associated hardware shall be provided and installed as specified.

One (1)

Y\_\_N\_\_

### **DRIVER SIDE**

The driver side of the apparatus body shall consist of the following configuration.

One (1)

Y\_\_N\_\_

### **DRIVER SIDE COMPARTMENTS**

Three body compartments shall be furnished as follows:

- One compartment ahead of the rear wheels with full height roll-up door.
- One compartment above rear wheels with roll-up door.
- One compartment behind the rear wheels with full height roll-up door.

One (1)

Y\_\_N\_\_

### **PASSENGER SIDE COMPARTMENTS**

The passenger side of the apparatus body shall consist of the following compartment configuration.

One (1)

Y\_\_N\_\_

### **PASSENGER SIDE COMPARTMENTS**

Three body compartments shall be furnished as follows:

- One compartment ahead of the rear wheels with full height roll-up door.
- One compartment above rear wheels with roll-up door.
- One compartment behind the rear wheels with full height roll-up door.

One (1)

Y\_\_N\_\_

### **REAR BODY CONFIGURATION**

Rear apparatus body compartments shall be as follows:

- There shall be one lower compartment with roll-up door.

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One (1) Y\_\_N\_\_

### **REAR BEAVER TAIL**

There shall be a beaver tail on the rear of the body. The beaver tail shall angle down from the top of the hose bed to the rear step area. Polished aluminum tread bright shall be installed on the inside of the beaver tail.

One (1) Y\_\_N\_\_

### **EXTERIOR COMPARTMENT FLOOR COVERING**

All enclosed compartment floors with exterior opening doors on the apparatus body shall be covered with black colored rigid Turtle Tile for improved ventilation and added scuff protection for the compartment floor.

Six (6) Y\_\_N\_\_

### **ALUMINUM UNISTRUT CHANNEL**

Extruded aluminum unistrut channel shall be installed in the following compartments for future installation of SCBA bottle brackets and tool boards.

Unistrut channels shall be located in all three (3) of the upper compartments on both sides of the body.

One (1) Y\_\_N\_\_

### **SLIDE-OUT TRAY**

Slide-out trays shall be constructed of 3/16" aluminum material. Trays shall have with heavy-duty roller bearing slides with a latch to hold the tray in the "open" and "closed" positions. Tray shall have capacity of 500 pounds.

One (1) tray shall be provided and mounted in the passenger's side lower rear compartment. The tray shall be provided for the specified generator.

Two (2) Y\_\_N\_\_

### **DRIVER SIDE AIR BOTTLE COMPARTMENTS IN WHEELWELL**

SCBA storage compartment shall be provided and located in the driver side rear wheel well of the apparatus body. Compartment door and frame shall be constructed entirely of cast aluminum and have hinged style door. The compartment bottom and rear wall shall be lined with rubber material to protect paint finish of the air cylinder.

Two (2) SCBA storage compartments shall be located at the rear of the fender area on the driver's side.

Two (2) Y\_\_N\_\_

### **PASSENGER SIDE AIR BOTTLE COMPARTMENTS IN WHEELWELL**

SCBA storage compartment shall be provided and located in the passenger side rear wheel well of the apparatus body. Compartment door and frame shall be constructed entirely of cast aluminum and have hinged style door. The compartment bottom and rear wall shall be lined with rubber material to protect paint finish of the air cylinder.

Two (2) SCBA storage compartments shall be located at the rear of the fender area on the passenger's side.

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Twelve (12)

### SCBA BRACKETS

Y\_\_N\_\_

SCBA mounting bracket(s) shall be provided and mounted in the enclosed storage compartments as per instructions of Fire Department.

Twelve (12) SCBA brackets shall be provided. Locations of the brackets shall be determined prior to construction.

One (1)

### EXTRUDED ALUMINUM RUB RAILS

Y\_\_N\_\_

Full body length polished aluminum rub rails shall be bolted in place on the right and left body sides and in the pump panel area. The rub rails shall extend outward beyond the body sides for protection of the compartments and doors. There shall be a bolt on aluminum corner casting on each rear corner to blend the rear tailboard assembly with the side rub rails.

The side rub rails shall be a heavy extruded aluminum "C" channel.

One (1)

### SIDE AND REAR OVERLAYS

Y\_\_N\_\_

Overlay panels shall be constructed of 3003 polished aluminum treadplate. Polished aluminum overlay shall be provided and installed in the following areas:

- The front face of each side compartment.
- The rear body face and vertical area above tailboard and below hose bed.
- Driver's side and passenger compartment top extending down over side to the compartment doors then forming a drip rail above doors.
- Front face of hose bed above booster tank.

Overlay shall be installed with "Aluminized" stainless steel bolts to prevent corrosion.

One (1)

### SLIP-RESISTANT WALKWAY SURFACE

Y\_\_N\_\_

All exterior surfaces designated as stepping, standing, and walking areas shall have an aluminum slip-resistant overlay material installed. The slip-resistant overlay material shall have a raised serrated surface that will allow moisture to drain out either side. The recessed surface shall be one piece solid material to prevent road spray and debris from entering the top surface from below. The slip-resistant overlay material shall meet the requirements of NFPA 13-7.3. The slip-resistant surface shall be installed in the following areas of the apparatus body:

- Step areas of the side running boards.
- Rear step running board step.
- Walkway and standing platforms

One (1)

### REAR STEP/RUNNING BOARDS

Y\_\_N\_\_

The apparatus body running boards and rear step shall be constructed with slip-resistant surface and shall have bright aluminum treadplate trim around the outside

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One (1)	edges. Side running boards and rear step shall be removable for ease of service in case of damage. <b>REAR STEP/TAILBOARD</b>	Y__N__
One (1)	A single piece .188 rear step/tailboard shall be furnished that is a minimum of 12.00" deep and full width of the apparatus body, from rub rail to rub rail. The tailboard shall be provided with a removable casting on each corner for a pleasing appearance. <b>HANDRAILS</b>	Y__N__
One (1)	Access handrails shall be 1 1/4" in diameter extruded aluminum with rubber insert. Access rail escutcheons and brackets shall be chrome plated and attached with stainless steel bolts. Anchoring of posts and framing members for railings of all types shall be of such construction that the completed railing structure shall be capable of withstanding a load of at least 225 pounds applied in any direction at any point along the rail. <b>REAR HANDRAILS</b>	Y__N__
One (1)	Two (2) vertical access handrails shall be provided and mounted on the rear of the apparatus body, one on each side. Each rear handrail to be approximately 48" long. <b>HANDRAIL - REAR</b>	Y__N__
One (1)	A full width access rail is to be provided and installed across the rear face of the apparatus body, below the hose bed level above the rear compartment doors. <b>HANDRAIL – PUMP PANEL</b>	Y__N__
One (1)	An access rail shall be provided and installed on the upper section of the right side pump house. <b>HANDRAIL – PUMP PANEL</b>	Y__N__
Eight (8)	An access rail shall be provided and installed on the upper section of the left side pump house. <b>FOLDING ACCESS STEPS</b>	Y__N__
	Eight (8) NFPA approved folding steps shall be provided and mounted on the apparatus body as listed below. All access steps shall have a minimum surface area of 35-square inches, and have a slip-resistant standing surface. The step shall be capable of supporting a 500-lb. load.  The folding steps shall be located as follows: <ul style="list-style-type: none"><li>• Three (3) on the left front compartment area,</li><li>• One (1) on the right front compartment area,</li><li>• One above and one below the full width rear step on each side of the body.</li></ul>	

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One (1)

Y\_\_N\_\_

### **FULL WIDTH INTERMEDIATE STEP**

There shall be a full width intermediate step furnished and installed on the rear of the apparatus body. The top surface to the intermediate step shall have a slip-resistant surface meeting NFPA requirements. The intermediate step shall be fabricated of polished aluminum treadplate material and be bolted to the rear of the apparatus body.

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One (1)

### **ELECTRICAL**

Y\_\_N\_\_

Electrical wiring, hydraulic lines, air system tubing, and control cables shall be fastened to the frame or body structure of the apparatus and shall be furnished with protective looms, grommets, or other devices, so that any such connector and/or wiring will be protected from shear or tear.

The body 12-Volt electrical system shall be designed specifically for the apparatus body. Automatic reset circuit breakers shall be provided and installed in all circuits.

Wiring data shall be provided with the completed apparatus.

One (1)

The following electrical equipment and lights shall be provided and installed:

Y\_\_N\_\_

### **WIRING SYSTEM**

All electrical wiring shall be 14-gauge heavy strand copper with type GXL crosslink high temperature insulation, being circuit function printed every three-inches along its entire length.

Wiring data shall be provided with the completed apparatus.

One (1)

The following electrical equipment and lights shall be provided and installed:

Y\_\_N\_\_

### **TAIL & STOP LIGHTS**

Two (2) Weldon #2010 rectangular red stop/tail lights shall be provided and mounted at the rear of the body, one on each side.

One (1)

### **DIRECTIONAL LIGHTS WELDON 2010**

Y\_\_N\_\_

Two (2) Weldon #2010, rectangular amber directional signal lights with black arrows shall be provided and mounted at the rear of the body, one on each side below the stop/tail lights.

One (1)

### **BACKUP LIGHTS WELDON 2010 (RECT)**

Y\_\_N\_\_

Two (2) Weldon #2010, rectangular clear backup lights shall be provided and mounted, one on each side at the rear of the body. The backup lights shall be mounted below the rear stop/tail and directional lights.

One (1)

### **CLEARANCE LIGHTS**

Y\_\_N\_\_

There shall be clearance marker lights installed meeting all DOT requirements. The vehicle clearance lights shall be recess mounted within the rear center tailboard step.

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One (1) **LICENSE PLATE BRACKET** Y\_\_N\_\_

A license plate mounting bracket shall be provided complete with a chrome-plated shielded indirect type light. Bracket shall be mounted at the rear of the apparatus body.

One (1) **BACKUP ALARM** Y\_\_N\_\_

An automatic, electronic reverse alarm shall be provided and installed. An alarm shall activate whenever the reverse gear is selected in the transmission.

One (1) **LOAD MANAGER** Y\_\_N\_\_

The apparatus shall be equipped with a Kussmaul model 091-79 Automatic Load Shedding System for performing continuous electrical load management. The Load Manager shall have the following features:

- Monitor 12-volt system and detect low voltage.
- Capability to control two (2) loads.
- Automatic reset when voltage rises.
- Adjustable voltage setpoint.

The load manager shall be protected against reverse polarity and shorted outputs, and be enclosed in a metal enclosure to enhance EMI/RFI protection. CSFA shall provide for all electrical loads in excess of the NFPA minimum electrical requirements that exceed the alternator output.

One (1) **HIGH IDLE SYSTEM** Y\_\_N\_\_

There shall be a high idle system furnished and installed on the apparatus. The high idle system shall have an on/off switch located in the chassis on the switch console. The system shall have an interlock that will disable the solenoid if the parking brake is not completely set.

Eleven (11) **COMPARTMENT LIGHTING** Y\_\_N\_\_

All side and rear exterior equipment compartments shall be provided with one (1) clear compartment light mounted to the side walls of the compartment. Compartment lights shall switch on automatically when the compartment door is opened and switch off when the door is closed.

One (1) **OPEN COMPARTMENT/HAZARD WARNING LIGHT** Y\_\_N\_\_

A red flashing, warning light shall be provided and installed in the driver's compartment to indicate an open passenger or apparatus compartment door. The hazard light shall also be attached to folding equipment racks and light towers as specified. Light shall be properly marked and identified.

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One (1)

### **BATTERY DISCONNECT SWITCH**

Y\_\_N\_\_

A Cole-Hersee M-284-01 heavy-duty battery disconnect switch shall be provided and mounted in a convenient location to the driver. All wiring shall be provided from the switch to the chassis supplied batteries.

A "Battery-On" pilot light shall be provided, visible to the driver.

### **IGNITION SWITCH**

A non-removable ignition key shall be provided.

One (1)

### **BATTERY CONDITIONER/AIR COMPRESSOR**

Y\_\_N\_\_

A Kussmaul Pump Plus 1200 air compressor/battery conditioner shall be supplied.

The battery conditioner shall be mounted in the cab on the bulkhead at the floor in front of the officer. An aluminum treadplate cover shall be installed over the battery conditioner.

The air compressor shall be installed behind the officer's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure.

The battery conditioner shall have a switch for selection of operation voltage source. When in the A.C. position it shall operate only from shoreline.

A bar graph indicator shall be provided and installed on the driver's side of the cab indicating the charge level of the batteries.

One (1)

### **AUTO-EJECT**

Y\_\_N\_\_

A Kussmaul "Super Auto-Eject" 20-amp automatic disconnect device shall be provided and installed on the 110 volt shoreline connection complete with weatherproof cover and matching plug. The Auto-Eject shall be activated by the chassis starter switch to disconnect the plug. The Super Auto-Eject shall be completely sealed to prevent contamination of the mechanism by inclement weather and road conditions. The Super Auto-Eject shall have an internal switch to open and close the A.C. circuit after the mating connector is inserted and before the connector is removed.

One (1)

### **DASH MOUNTED EMERGENCY ELECTRICAL SWITCH PANEL**

Y\_\_N\_\_

An electrical switch panel shall be designed and mounted in the cab dash area. All switches shall be provided with back lighted snap-in legend inserts.

### **SWITCHES**

All emergency light switches shall be lighted, rocker style. Switches shall be internally lit when the switch circuit is in the on position. A plug-in identification label is to be

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provided and installed adjacent to each rocker switch with backlighting provided behind the label.

An internally lighted "master" switch shall be provided and wired through a heavy-duty relay to activate power to the emergency lights.

One (1)

Y\_\_N\_\_

### MAP LIGHT

One (1) flexible "gooseneck" type map light shall be provided and mounted on the cab dash panel complete with a switch on the light fixture base.

One (1)

Y\_\_N\_\_

### REAR STEP LIGHTS

Two (2) chrome plated lights shall be furnished and installed on the rear face of the body to illuminate the rear step area. Lights shall be wired to the panel light switch at the pump operator's panel.

One (1)

Y\_\_N\_\_

### ENGINE COMPARTMENT WORK LIGHT

An engine compartment work light shall be provided complete with a switch mounted on the light head.

One (1)

Y\_\_N\_\_

### PUMP COMPARTMENT WORK LIGHT

A pump compartment work light shall be provided and installed within the pump compartment area complete with a switch mounted on the light head.

One (1)

Y\_\_N\_\_

### UNDER CAB LIGHTING

There shall be two (2) lights furnished below the chassis cab, one on each side below each door. The lights shall be wired to switch on and off automatically when the cab doors are opened.

One (1)

Y\_\_N\_\_

### UNDER BODY LIGHTING

There shall be two (2) lights furnished below the pump house running board, one on each side. The lights shall be wired to turn on and off with a switch located on the pump operator's panel.

One (1)

Y\_\_N\_\_

### UNDER BODY LIGHTING REAR STEP

There shall be two (2) lights furnished below the rear step, one on each side. The lights shall be wired to turn on and off with a switch located on the pump operator's panel.

One (1)

Y\_\_N\_\_

### REAR DECK LIGHTS

Two (2) Collins #FX-121, 12-volt, chrome-plated, rear mounted lights with swivel type mounting bracket and individual switches shall be provided.

Each light shall have a 750,000 candlepower, 100-watt spot lamp and 6,000 candlepower 55-watt flood lamp.

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One (1) Y\_\_N\_\_

### AIR HORNS

Two (2) chrome-plated Grover "Stuttertone" air horns shall be provided and mounted on the sides of the engine hood. A pressure protection valve to prevent the use of air horns or other air operated accessories when the system air pressure drops below 80 psi shall be provided.

One (1) Y\_\_N\_\_

Air horns shall be controlled from the following switch positions.

One (1) overhead lanyard control shall be provided in the front of the cab for activation of the air horn. The lanyard control shall be accessible to both the driver and the officer when seated.

One (1) Y\_\_N\_\_

### HORN SELECTOR SWITCH

An air horn/horn selector switch shall be provided and mounted on the switch console to select activation of the chassis horn, or the air horns.

One (1) Y\_\_N\_\_

### ELECTRONIC SIREN

A Code 3 Model 3692 V-CON, 200-watt electronic siren with Hi-Lo and hardwired microphone shall be provided and mounted in the cab.

One (1) Y\_\_N\_\_

### SPEAKER

Cast Products Model GS1004, 100-watt speaker shall be provided and recess mounted in the front bumper of the chassis. The speaker shall be connected to the electronic siren control unit.

One (1) Y\_\_N\_\_

### RADIO ANTENNA

There shall be a universal base for the radio antenna installed on the chassis cab roof. The power and ground wires for the radio shall also be installed.

One (1) Y\_\_N\_\_

### EMERGENCY LIGHTING

The upper and lower zones "A", "B", "C", "D" of the apparatus shall have the following emergency lighting equipment:

One (1) Y\_\_N\_\_

### LIGHT BAR

One (1) Code 3 model 556A1 56" mounted on chassis cab roof to meet the NFPA upper zone A lighting requirement. Light bar to have the following equipment.

- (6) 50-watt standard rotators outboard
- (3) diamond mirrors centered between rotators

One (1) Y\_\_N\_\_

### REAR LIGHTS

Two (2) Code 3 model 550F rotating lights mounted on the rear of the apparatus body to meet the NFPA Zone B, C, D upper level lighting requirement. The lights

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shall be activated through the master emergency light switch located on the electrical console. Each light to have the following equipment.

- (1) 50-watt fast rotator
- 1 Red lens / 1 Amber lens

One (1)

Y\_\_N\_\_

### UPPER ZONE "B, C, D" LIGHT MOUNTING

The upper rear lights designated for Upper Zone "B" shall be mounted on cast aluminum stanchions attached to the apparatus body, one on each side.

One (1)

Y\_\_N\_\_

### ZONE A FRONT LIGHTS

There shall be two (2) Code 3 model OL135 oscillating lights furnished on the front grill to meet the NFPA Zone A lower level lighting requirement. The lights shall be connected to a relay be activated through the master emergency light switch located on the electrical console.

One (1)

Y\_\_N\_\_

### ZONE B & D SIDE LIGHTS

There shall be three (3) Code 3 model 4135 halogen flashing lights furnished on each side of the apparatus to meet the NFPA Zone B & D lower level lighting requirement. One light mounted as far forward as possible, one light mounted as far to the rear as possible, and one light mounted between the front and rear lights. The halogen lights shall be connected to a flasher and be activated through the master emergency light switch located on the electrical console.

One (1)

Y\_\_N\_\_

### ZONE C REAR LIGHTS

There shall be two (2) Code 3 model 4135 halogen flashing lights furnished on the rear of the apparatus body to meet the NFPA Zone C lower level lighting requirement. The halogen lights shall be activated through the master emergency light switch located on the electrical console.

One (1)

Y\_\_N\_\_

### 12 VOLT ELECTRICAL CERTIFICATION

The low voltage electrical system shall be tested and certified per NFPA 1901 requirements.

A certificate of compliance shall be provided with the completed vehicle upon delivery.

Minimum electrical load consists of the total amperage required to simultaneously operate the following in a stationary mode at the incident scene.

- The propulsion engine and transmission.
- All Clearance and marker lights.
- The communication radio. (Default of 5.0 amps used for testing).
- Illumination of all walking surfaces, the ground at all egress points, controls and instrument panels and 50% of the total compartment lighting load.
- Minimum warning lights required for "Blocking Right of Way" mode.

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- The current to simultaneously operate any fire pump, aerial device & hydraulic pumps.
- Anything defined by the purchaser to be critical to the mission of the apparatus.

The first test for the electrical system is the **Reserve Capacity Test**. All the above listed components operate with the engine shut off. After 10 minutes all electrical loads are shut off and the battery system must have adequate reserve power to start the engine.

The second test is the **Alternator Performance Test at Idle**. All the above listed components operate with the engine at an idle. There can be no current draw from the batteries of the apparatus.

The third test is the **Alternator Performance Test at Full Load**. All electrical components shall be activated with the engine operating at governed RPM for two hours. During the test the system voltage can not drop below 11.7-volts or have excessive battery discharge for more than 120 seconds. Any loads not listed in the minimum electrical load may be load managed in order to pass the test.

All of the above tests must be conducted with the engine compartment at approximately 200 degrees.

One (1)

Y\_\_N\_\_

### GENERATOR

A Honda EM-3500S XK1, 3500-watt, 120/240-volt generator shall be provided. The unit shall have an air cooled 8HP gasoline engine equipped with low oil pressure shutdown. The unit shall be three wire, single phase 60-hz with full rated power available from a single 120-volt outlet. The oil drain, oil dip stick, fuel filter and oil filter for the generator must be easily accessible for maintenance.

An integral 4.5-gallon fuel tank, with electric and recoil starter shall be furnished with the generator.

Electric start provisions shall be furnished for the generator from the chassis battery system. Generator start/stop switch shall be provided at the generator.

One (1)

Y\_\_N\_\_

### CIRCUIT BREAKER PANEL

A circuit breaker panel shall be provided and mounted with two (2) manual reset circuit breakers properly labeled.

A portable generator shall be connected to the circuit breaker panel with S/O cord and quick disconnect plug. A permanent mount generator shall be hard wired to the circuit panel.

The circuit breaker panel shall be located in a compartment as close to the generator as practical, and mounted to not interfere with shelves or trays if specified. Circuit breaker panel shall be mounted toward the bottom of the compartment just above the compartment floor. Breaker panel cover shall be accessible with hand tools.

One (1)

Y\_\_N\_\_

All AC wiring to be installed in liquid tight conduit.

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One (1) **GENERATOR MOUNTING** Y\_\_N\_\_

The generator shall be mounted in the right rear lower compartment

One (1) **12 VOLT TERMINAL STRIP** Y\_\_N\_\_

A 12 volt terminal strip shall be provided for later installation of the fire department radios and other electrical equipment.

Two (2) **TELESCOPING QUARTZ LIGHTING** Y\_\_N\_\_

A quartz light shall be provided and mounted on the apparatus, wired to the 110-volt power source. The light shall be UL listed as "Scenelights for Fire Service Use". Light shall be controlled by a switch located on the light head.

Light shall be a Fire Research 500W/110V Nightmaster.

The light shall be attached to a side mounted, top raise telescoping, anodized aluminum pole. The telescoping pole shall have a forty-inch extension with friction lock mechanism. The telescoping pole shall be prewired with heavy-duty retractile cord with pigtail extending out the bottom of the lower tube.

The telescoping pole shall be Fire Research model 540.

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One (1)

Y\_\_N\_\_

### PAINTING

All bright metal fittings if unavailable in stainless steel shall be heavily chrome-plated. Iron fittings shall be copper plated prior to chrome plating.

All seams shall be caulked both inside and along the exterior edges with an automotive sealant to prevent moisture from entering between any body panels.

The body and all parts shall be thoroughly washed with grease cutting solvents prior to any sanding. After the body has been sanded and the minor imperfections filled and sanded, the body shall be washed again with a solution to remove any contaminants on the surface. The first coating to be applied is a self-etching primer for maximum adhesion to the body metal. The next three coats shall be an acrylic, urethane, primer surfacer. The primer surfacer coat is to be hand sanded with 600-grit sandpaper to insure maximum gloss of the paint. The last step is the application of at least three coats of Concept Acrylic Urethane two component color.

The fire pump and all rigid discharge and suction plumbing shall be painted silver in color.

While constructing the truck body, all aluminum parts shall be properly fitted on the body. The backside of all aluminum parts shall be sanded smooth of any burrs and sharp edges.

All aluminum parts shall be bolted to the body using stainless steel fasteners. Cadmium plated fasteners are not acceptable.

During reassembly of the apparatus, care shall be exercised in fitting and fastening the parts back in their respective position on the vehicle.

Eleven (11)

Y\_\_N\_\_

### NATURAL FINISH ROLL UP DOORS

The roll-up doors on each side of the apparatus body shall be a natural finish aluminum.

One (1)

Y\_\_N\_\_

### UNDERCOATING

The body sub frame shall be undercoated with a heavy-duty automotive type undercoating before the rubber backing and the compartments are attached. After the body has been attached to the sub frame and all final items have been installed the entire body assembly shall be undercoated

One (1)

Y\_\_N\_\_

### INTERIOR COMPARTMENT PAINT

The interior vertical compartment walls are to be painted white with a black colored spatter finish material.

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One (1) Y\_\_N\_\_

### WHEEL PAINTING

The exterior faces of the front and rear wheels, shall be finished painted to match the apparatus body. Wheels shall be properly prepared and finished with primer coats and topcoats as specified.

The outer two-inches of each outside wheel rim shall be painted Silver in color, unless otherwise specified.

One (1) Y\_\_N\_\_

### PAINT BODY TO MATCH CHASSIS

The apparatus body to be painted to match the chassis.

The color to be PPG Fire Engine Red number 73841.

One (1) Y\_\_N\_\_

### TOUCH-UP PAINT

There shall be touch-up paint furnished with the truck.

One (1) Y\_\_N\_\_

### LETTERING

Lettering shall be done in gold leaf mylar letters, shaded in black, and encapsulated in clear mylar. Lettering to be placed on each cab door as directed by fire department. Maximum of fifty (50) letters.

One (1) Y\_\_N\_\_

Exact lettering requirements shall be determined prior to construction.

One (1) Y\_\_N\_\_

### REFLECTIVE SAFETY STRIPE

A 4" wide 3M brand Scotchlite #680-10 reflective stripe shall be affixed to the perimeter of the vehicle. Striping shall be placed up to 60" above ground level and shall conform to NFPA reflectivity requirements. At least 60% of the perimeter length of each side and width of the rear, and at least 40% of the perimeter width of the front of the vehicle shall have reflective stripe.

The side stripe shall be applied straight across the body.

The stripe shall be white in color.

One (1) Y\_\_N\_\_

### IDENTIFICATION & SAFETY LABELS

A permanent plate shall be installed in the driver's compartment to specify the quantity and type of the following fluids in the vehicle:

1. Engine oil.
2. Engine coolant.
3. Transmission fluid.
4. Pump Transmission Lubrication Fluid.
5. Pump Primer Fluid (If applicable).
6. Drive Axle Lubrication Fluid.
7. Air-conditioning refrigerant.

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8. Air-conditioning lubrication oil.
9. Power steering fluid.
10. Transfer case fluid.
11. Equipment rack fluid.
12. Air compressor system lubricant.
13. Generator system lubricant.

When trucks have been UL certified, a permanent plate with pump performance data and serial numbers shall be installed on the pump panel.

A permanent plate shall be installed in the driver's compartment specifying the maximum number of personnel the vehicle is designed to carry per NFPA standards. It shall be located in an area visible to the driver.

An accident prevention sign stating "DANGER PERSONNEL MUST BE SEATED AND SEAT BELTS MUST BE FASTENED WHILE VEHICLE IS IN MOTION OR DEATH OR SERIOUS INJURY MAY RESULT". The warning sign shall be placed so it is visible from all seating positions.

An accident prevention sign stating "DANGER DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION, DEATH OR SERIOUS INJURY MAY RESULT". The warning sign shall be placed so it is visible from the rear step of the vehicle.

If an inlet located at the pump operator's position is valved, it shall be provided with a permanent label that states "WARNING SERIOUS INJURY Or DEATH COULD OCCUR IF INLET IS SUPPLIED BY A PRESSURIZED SOURCE WHEN THE VALVE IS CLOSED".

One (1)

Y\_\_N\_\_

### **OPERATION / SERVICE MANUALS**

The manufacturer shall provide with the vehicle upon delivery, one (1) complete delivery manual. These manuals shall be in a notebook type binder, with reference tabs for each section of the vehicle. Within each section shall be:

1. Individual component manufacturer instruction and parts manuals.
2. Warranty forms for body.
3. Warranty forms for all major components.
4. Warranty instructions and format to be used in compliance to warranty obligations.
5. Wiring diagrams.
6. Installation instructions and drawings for major parts.
7. Visual graphics, electronic photos of installations of major parts.
8. Necessary normal routine service forms, publications and components of body portion of the apparatus.
9. Technical publications on training and instructions for major body components.
10. Warning and safety related notices for personnel protection.
11. Cab and chassis manuals on parts, service and maintenance shall be provided.
12. UL Pump Certification sheets, including the Manufacturer's Record of Apparatus construction details.

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13. Certificate of Compliance to Electrical Warning System Low Voltage test.
14. Line Voltage Electrical System test certificate.
15. Water tank capacity certificate.

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One (1)	<b>ADDITIONAL EQUIPMENT</b>	Y__N__
	The following equipment shall be furnished by the apparatus body builder.	
	<b>LADDERS</b>	
One (1)	A 24-foot, 2-section aluminum fire department extension ladder, ALCO-LITE Model PEL-24, shall be furnished.	Y__N__
One (1)	A 14-foot aluminum roof ladder with folding hooks, ALCO-LITE model PRL-14, shall be furnished.	Y__N__
One (1)	A 10-foot folding aluminum attic ladder, with mounting brackets, ALCO-LITE model FL-10, shall be furnished.	Y__N__
	<b>PIKE POLES</b>	
One (1)	8-foot pike pole with fiberglass handle and steel hook shall be furnished.	Y__N__
One (1)	10-foot pike pole with fiberglass handle and steel hook shall be furnished.	Y__N__
Two (2)	<b>HARD SUCTION HOSE</b>	Y__N__
	A 10-foot length of 6" lightweight PVC, flexible fire department suction hose, first quality non-collapsible type, of a design having a low friction loss and which will not collapse under a vacuum of 23".	
	Hard suction hose to be equipped with lightweight couplings. Long handles on female and rocker lugs on male couplings.	
One (1)	Two (2) lengths of hard suction hose shall be provided.	Y__N__
	<b>SUCTION STRAINER</b>	
Two (2)	A 6" NST chrome-plated barrel type suction hose strainer shall be provided.	Y__N__
	<b>STREAMLIGHTS</b>	
	Streamlight Litebox SL-40 flashlights shall be installed in the chassis cab and wired to the chassis 12-volt system.	
	Exact locations of the lights shall be determined prior to construction.	
One (1)	<b>AXES</b>	Y__N__
	A 6-pound flathead axe(s) with fiberglass handle shall be mounted as specified. Chrome-plated mounting shall be provided.	
	The location of the flathead axe shall be determined prior to construction.	

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- One (1) A 6-pound pickhead axe(s) with fiberglass handle shall be mounted as specified. Chrome-plated mounting shall be provided. Rubber protector for pickhead axe shall be supplied. Y\_\_N\_\_
- One (1) The location of the pickhead axe shall be determined prior to construction. Y\_\_N\_\_
- FIRE HOSE**
- 350 Feet of 1-1/2" DJ Fire Hose (Yellow) shall be provided.
- 1,250 Feet of 2-1/2" DJ Fire Hose (Yellow) shall be provided. Y\_\_N\_\_
- NOZZLES**
- Two (2) Akron 1-1/2" 30-125 GPM non-pistol grip nozzles.
- One (1) Akron 2-1/2" 90-250 GPM non-pistol grip nozzle.

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One (1)

Y\_\_N\_\_

### WARRANTY

We warrant each new motorized fire apparatus manufactured by CENTRAL STATES FIRE APPARATUS for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein.

Under this warranty we agree to furnish any parts to replace those that have failed due to defective material or workmanship where there is no indication of abuse, neglect, unusual or other than normal service providing that such parts are, at the option of CENTRAL STATES FIRE APPARATUS, made available for our inspection at our request, returned to our factory or other location designated by us with transportation prepaid within thirty days after the date of failure or within one year from the date of delivery of the apparatus to the original purchaser, whichever occurs first, and inspection indicates the failure was attributed to defective material or workmanship.

The warranty on the chassis and chassis supplied components, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

This warranty will not apply to any fire apparatus that has been repaired or altered outside our factory in any way, which in our opinion might effect its stability or reliability.

This warranty shall not apply to those items that are usually considered normal maintenance and upkeep services: including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps or reels.

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on our part. We neither assume nor authorize any person to assume for us any liability in connection with the sales of our apparatus unless made in writing by CENTRAL STATES FIRE APPARATUS.

One (1)

Y\_\_N\_\_

### 5 YEAR ALUMINUM BODY WARRANTY

Central States Fire Apparatus LLC (CSFA) warrants to the original purchaser only, that the all aluminum body, fabricated by Central States Fire Apparatus, under normal use and with reasonable maintenance, be structurally sound and will remain free from corrosion perforation for a period of FIVE (5) years.

This warranty does not apply to the following items that are covered by a separate warranty: paint finish, hardware, moldings, and other accessories attached to this body. In addition, this warranty does not apply to any part or accessory manufactured by others and attached to this body.

CENTRAL STATES FIRE APPARATUS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE ALUMINUM BODY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND HEREBY DISCLAIMED.

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Central States Fire Apparatus will replace without charge, repair or make a fair allowance for any defect in material or workmanship demonstrated to its satisfaction to have existed at the time of delivery or not due to misuse, negligence, or accident. If Central States Fire Apparatus elects to repair this body, the extent of such repair shall be determined solely by Central States Fire Apparatus, and shall be performed solely at the Central States Fire Apparatus factory, or at an approved facility. The expense of any transportation to or from such repair facility shall be borne by the purchaser and is not an item covered under this warranty.

Central States Fire Apparatus will not be liable for damages and under no circumstances will its liability exceed the price for a defective body. The remedies set forth herein are exclusive and in substitution for all other remedies to which the purchaser would otherwise be entitled.

Central States Fire Apparatus will be given a reasonable opportunity to investigate all claims. The purchaser must commence any action arising out of, based upon or relating to agreement or the breach hereof, within twelve months from the date the cause of the action occurred.

One (1)

Y\_\_\_N\_\_\_

### PAINT WARRANTY

The PPG paint performance guarantee will cover the areas of the vehicle finished with the specified product for a period of FIVE (5) years beginning the day the vehicle is delivered to the purchaser.

The areas as outlined on the Guarantee Certificate, will be covered for the following paint failures:

#### GUARANTEE INCLUSIONS:

#### FULL APPARATUS BODY MANUFACTURED AND PAINTED BY CENTRAL STATES FIRE APPARATUS:

- \* Peeling or delamination of the topcoat and/or other layers of paint.
- \* Cracking or checking.
- \* Loss of gloss caused by cracking, checking, or hazing.
- \* Any paint failure caused by defective PPG Fleet Finishes which are covered by this guarantee.

All guarantee exclusions, limitations, and methods of claims are covered in the full certificate provided to the original purchaser.

One (1)

Y\_\_\_N\_\_\_

### SUBFRAME WARRANTY

Subject to the provisions, limitations and conditions set forth in this warranty, Central States Fire Apparatus, LLC (hereby referred to as "seller"), hereby warrants to each

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original purchaser only that each new hot dip galvanized or stainless steel body sub frame (exclusive of paint finish and hardware) is structurally sound and free of all structural defects of both material and workmanship and further warrants that it will maintain such structural integrity. This warranty terminates upon transfer of possession or ownership by original purchaser.

This warranty is conditioned upon normal use and reasonable maintenance of such sub frame; prompt written notice of all defects to seller or one of the seller's then authorized dealers in the area; no repair or additions there to except by seller or authorized by it; said defect not resulting from misuse, negligence, accident, remount, overloading beyond applicable weight rating by customer or third parties. If any such conditions are not complied with, this warranty shall become void and unenforceable.

Should repairs become necessary under the terms or the warranty, the extent of that repair shall be determined solely by the seller and shall be performed solely at Central States Fire Apparatus, LLC or a repair facility designated by the seller. The expense of any transportation to or from such repair facility shall be that of the purchaser and is not an item covered by this warranty.

Seller reserves the unrestricted right at any time from time to time to make changes in the design of and/or improvements on its products without thereby imposing any obligation on itself to make corresponding changes or improvements in or on its products theretofore manufactured.

**EXCLUSIONS AND LIMITATIONS: THIS MANUFACTURER'S WARRANTY IS PROVIDED IN PLACE OF ANY AND ALL OTHER REPRESENTATIONS OR IMPLIED WARRANTIES. NO PERSON IS AUTHORIZED TO MAKE ANY REPRESENTATIONS OR WARRANTY ON BEHALF OF CENTRAL STATES FIRE APPARATUS, LLC OR ANY OF ITS DISTRIBUTORS OTHER THAN SET FORTH IN THIS MANUFACTURER'S WARRANTY. YOUR RIGHT TO SERVICE AND REPLACEMENT OF PARTS ON THE TERMS EXPRESSLY SET FORTH HERIN ARE YOUR EXCLUSIVE REMEDIES AND NEITHER THE MANUFACTURER NOR ANY OF ITS DISTRIBUTORS SHALL BE LIABLE FOR DAMAGES, WHETHER ORDINARY, INCIDENTAL OR CONSEQUENTIAL.**